# FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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## Flight.

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## EDITORIAL COMMENT.

**The Safety of Flight Commander Hewlett.**

On Friday of last week, just as the first issue of FLIGHT for the New Year had come off the press, the very welcome item of information transpired of the safety of Flight Commander Francis E. T. Hewlett, who had been reported as "missing" in connection with the brilliant exploit of the Royal Naval Air Service on Christmas Day. It appears, as recorded elsewhere in this issue, he had been rescued by a Dutch trawler, and after five days fishing with them was on New Year's Eve enabled to communicate with England.

With the safe return of Mr. Hewlett, every one of the seven officers were therefore accounted for, safe and sound, after their daring exploit.

We are indeed rejoiced that the fears of disaster to Mr. Hewlett generally entertained, and given expression to in our last issue, have been proved groundless, and we tender our sincere congratulations upon the happy issue to this adventure to Mr. and Mrs. Maurice Hewlett and equally to His Majesty's Flying Services in having still on the active list so valuable an officer as Flight Commander Hewlett.

**The Flying Services Fund.**

Probably no more masterly action could have been conceived by the Royal Aero Club for closing the year 1914 than its support in such substantial form of the Fund for the benefit of the Flying Services which it was invited to organise and administer by the Admiralty and the Army Council. The momentous decision having been taken, we trust no time will be lost in commencing with a stirring appeal to the public for subscriptions and donations to the Fund.

The brilliant performances of the officers of the Royal Flying Corps as well as of the Royal Naval Air Service during the closing week of the old year, have done much to further impress on the minds of the population of the Empire an appreciation of the valuable services to the cause of the Allies which aircraft, and those entrusted with its organisation, are rendering. With the unflinching courage of our aviators in attacking the enemy on his own ground so fresh in their minds, no better opportunity could be afforded of bringing the Fund sympathetically before the notice of the public, and having regard to the fact that it starts off with the magnificent contributions of £1,000 each from the Club and from the Brothers Michelin, and further substantial amounts, we feel sure that, with generous publicity given to its objects —that of supplementing Government provision for members of the Flying Services permanently incapacitated while carrying out their duties, or for the wives and dependants of those who may unfortunately be killed while in action—it will not be long ere the Fund has reached a five, and we are even sanguine enough to suggest a six, figure total.

While the need for the immediate administration of the Fund may not yet be pressing, the time for its organisation is NOW, and we trust that the Club will permit nothing to stand in the way of it being publicly launched at the earliest possible moment.

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**New Year Honours.**

Although it is, of course, in the order of things that those connected with the Royal Naval Air Service and the Royal Flying Corps gladly take all necessary risks of duty on active service, and naturally do not seek that they should be specially rewarded for doing that duty, it is none the less gratifying to record that both services have shared in the honours which were announced on New Year's Day. The three officers of the Royal Naval Air Service

who took part in the raid on Friedrichshafen have been made Companions of the Distinguished Service Order, and a similar honour has been bestowed upon Captain D. S. Lewis, of the Royal Flying Corps, for valuable work in directing artillery fire. In the list of officers and warrant officers to whom the new military decoration—the Military Cross—has been awarded are included the names of three officers and three sergeant-majors of the Royal Flying Corps.

Under the heading of "The British Air Services" on this page it will be noted a large number of officers in the Royal Naval Air Service have received promotion, while several officers of the Royal Flying Corps (Military Wing) have been given commissions in the Regular Army for services in the field, whilst among the non-commissioned officers who have recently been granted commissions for their work at the front are two sergeant-majors of the Royal Flying Corps.

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# THE BRITISH AIR SERVICES.

*UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the* LONDON GAZETTE, *it is not repeated in this column.*

## Royal Naval Air Service.

IN the special supplement to the *London Gazette* dated January 1st containing the New Year Honours, appeared the following :—

The following promotions have been made :—

Commanders to be Captains : William Leslie Elder (now holding the acting rank of Captain), Francis Rowland Scarlett (now holding the acting rank of Captain).

Lieutenant-Commander to be Commander : Frederic Lewis Maitland Boothby (now holding the acting rank of Commander).

Squadron Commanders to be Wing Commanders : Eugene Louis Gerrard, Arthur Murray Longmore.

Flight Commanders to be Squadron Commanders : Charles Edward Henry Rathborne, Douglas Austin Oliver, John Norman Fletcher, James Lindsay Travers, Thomas R. Cave-Browne-Cave.

Flight Lieutenants to be Flight Commanders : Arnold John Miley, William Charles Hicks, Edward Osmond, William George Sitwell, Charles Robert Finch Noyes.

Flight Sub-Lieutenants to be Flight Lieutenants : Philip Leslie Holmes, John Philip Wilson, James Douglas Maude, Ernest Victor Samuel Wilberforce, Evelyn Ronald Whitehouse, Harry Stewart, Anthony Rex Arnold, Denys George Murray, Norman Sholto Douglas, George Bentley Dacre, Ralph James Jean Hope-Vere, Bernard Crossley-Meates, Walter Hugh Stewart Garnett, Ralph Whitehead, Harold Rosher, the Hon. Desmond O'Brien, Edward G. Riggall, Gordon L. Thomson, Irving Henry Bebby Hartford.

Flight Sub-Lieutenants for Temporary Service to be Flight Lieutenants for Temporary Service : Vivian Gaskell Blackburn, Harold Austin Buss, George Cyril Colmore, Allan Knighton Robertson. All dated Dec. 31st, 1914.

The following appeared in the *London Gazette* of the 1st inst. :—

The following Lieutenant has this day been promoted to the rank of Lieut.-Commander in His Majesty's Fleet : Arthur Murray Longmore. Dec. 30th.

The following was announced by the Admiralty on Dec. 31st :—

Acting Flight Lieut. R. H. Jones has been confirmed in the rank of Flight Lieutenant, with seniority of Nov. 12th, and appointed to the "Pembroke III" for Royal Naval Air Service, Dec. 21st.

The following appeared in the *London Gazette* of Jan. 1st :—

*War Office. Commands and Staff.*—Deputy Assistant Director of Railway Transport (graded for purposes of pay as a Deputy Assistant Quartermaster-General)—Lieut.-Commander Cecil M. Paget, R.N.A.S., and to be temporary Major. Dec. 15th, 1914.

Railway Transport Officers (graded for purposes of pay as Staff Captains) : Lieut. Frederick W. Abraham, Royal Naval Air Service, and to be temporary Lieutenant.

The following was announced by the Admiralty on the 2nd inst. :—

Midshipman C. W. Fairfax Morgan, R.N.R., appointed as Probationary Flight Sub-Lieutenant, with seniority Dec. 30th, and appointed to the "Pembroke III," for Royal Naval Air Service.

## Royal Flying Corps (Military Wing).

THE following appeared in a supplement to the *London Gazette* issued on December 31st :—

*Special Reserve. Supplementary to Regular Corps.*—Second Lieut. James Valentine to be Lieutenant. Dated Nov. 11th, 1914.

John Claude Horsey Barfield to be Second Lieutenant (on probation). Dated Dec. 28th, 1914.

The following appeared in the *London Gazette* issued on Jan. 1st :—

*Special Reserve. Supplementary to Regular Corps.*—Frank Sowter Barnwell to be Second Lieut. (on probation). Dated Dec. 9th.

The following appeared in a supplement to the *London Gazette* issued on Jan. 2nd :—

*Special Reserve. Supplementary to Regular Corps.*—The undermentioned Second Lieutenants to be Lieutenants : Charles G. Bell ; dated Dec. 1st, 1914. Arthur V. Bettington ; dated Jan. 3rd, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 4th inst. :—

*Central Flying School.*—The undermentioned temporary appointment is made : Capt. Duncan Le G. Pitcher, 39th King George's Own Central India Horse, Indian Army, from Officer in Charge of Transport (graded as Flight Commander), to be an Instructor. Dated Jan. 5th, 1915.

*Memoranda.*—The undermentioned to be temporary Major : Lieut. (temporary Capt.) Thomas G. Hetherington, 18th (Queen Mary's Own) Hussars.

*Special Reserve. Supplementary to Regular Corps.*—The undermentioned Second Lieutenants (on probation) are confirmed in their rank : Arthur M. Wynne and Thomas F. D. R. Aikman.

The undermentioned Warrant Officers to be Second Lieutenants for service in the field :—

*Royal Horse and Royal Field Artillery.*—Sergeant-Major Norman Goldsmith, from Royal Flying Corps, and to be seconded for service with that corps. Dated Jan. 5th, 1915.

*The Prince of Wales's Own (West Yorkshire Regiment).*—Sergeant-Major David Samuel Jillings, from Royal Flying Corps, and to be seconded for duty with that corps. Dated Dec. 11th, 1914.

The following appeared in the *London Gazette* issued on the 5th inst. :—

The undermentioned Officers of the Reserve of Officers, Special Reserve of Officers, and Territorial Forces are commissioned for service in the field :—

*21st (Empress of India's) Lancers.*—Lieut. Eric Lewis Conran (Flight Commander Royal Flying Corps, Military Wing), from 2nd County of London Yeomanry, Territorial Force, to be Second Lieutenant, and to be seconded. Dated April 17th, 1913.

*Grenadier Guards.*—Capt. (Hon. Lieut. in Army) Robin Grey (Flight Commander Royal Flying Corps, Military Wing), from Warwickshire Royal Horse Artillery, Territorial Force, to be Captain, and to be seconded. Dated Nov. 3rd, 1914.

*The Royal Fusiliers (City of London Regiment).*—Capt. Reginald Percy Mills (Flying Officer Royal Flying Corps, Military Wing), from 5th (Special Reserve) Battalion, to be Second Lieutenant, and to be seconded. Dated Aug. 14th, 1913.

*The King's (Liverpool Regiment).*—Lieut. Gilbert William Mapplebeck (Flying Officer Royal Flying Corps, Military Wing), from 4th (Special Reserve) Battalion, to be Second Lieutenant, and to be seconded. Dated May 8th, 1913.

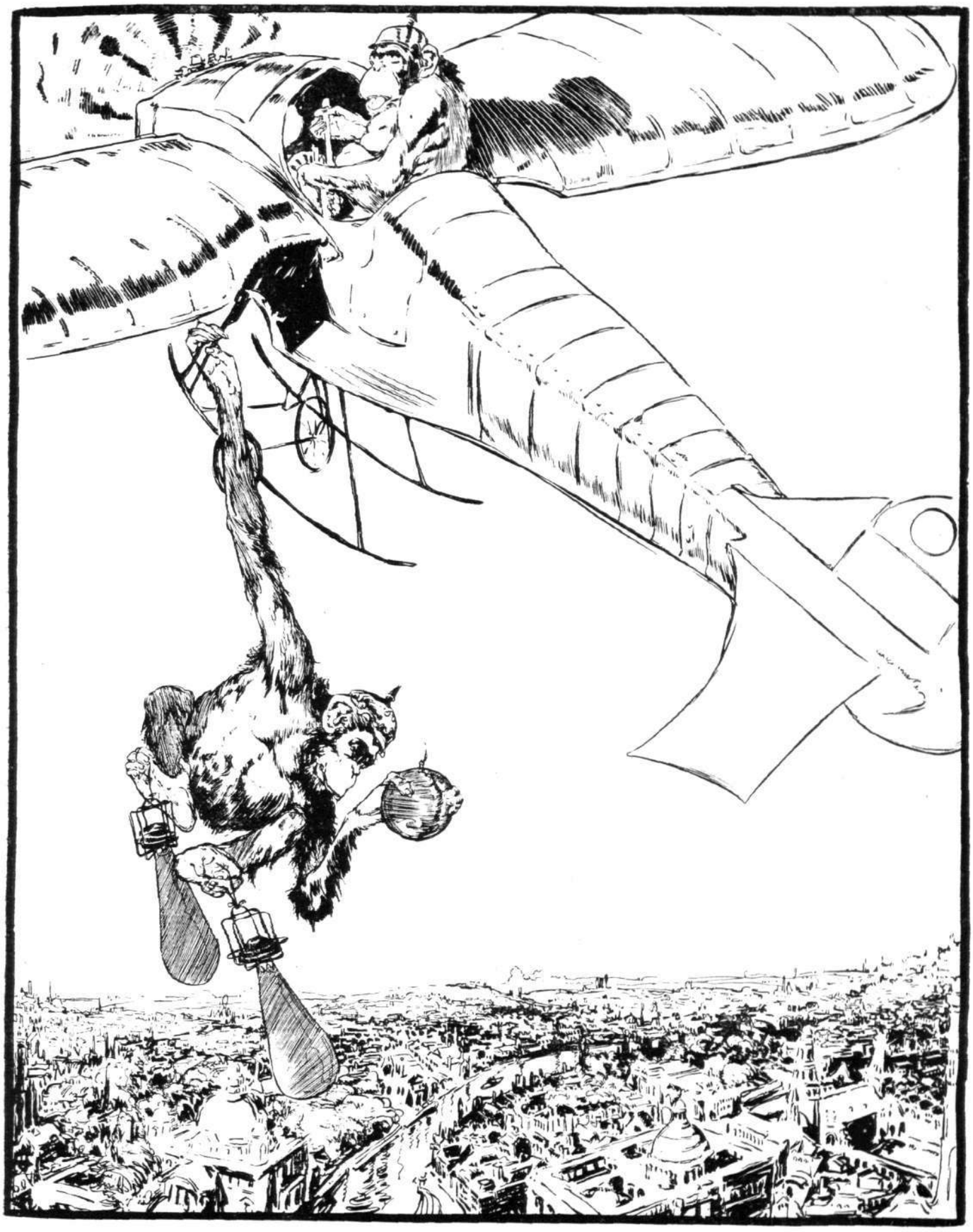
*The Norfolk Regiment.*—Lieut. Leslie Da Costa Penn-Gaskell (Flying Officer Royal Flying Corps, Military Wing), from 3rd (Special Reserve) Battalion, to be Lieutenant, and to be seconded. Dated Oct. 1st, 1914. Second Lieut. Oswyn George William Gifford Lywood (Flying Officer Royal Flying Corps, Military Wing), from Special Reserve of Officers, to be Second Lieutenant, and to be seconded. Dated Aug. 5th, 1914.

*The Dorsetshire Regiment.*—Lieut. Louis Arbon Strange (Flying Officer Royal Flying Corps, Military Wing), from Special Reserve of Officers, to be Second Lieutenant, and to be seconded. Dated July 30th, 1914.

*The Essex Regiment.*—Lieut. (temporary Capt. in Army) Walter Lawrence (Flight Commander Royal Flying Corps, Military Wing), from 7th (Territorial Force) Battalion, to be Lieutenant, and to be seconded. Dated Oct. 1st, 1914.

*Seaforth Highlanders (Ross-shire Buffs, the Duke of Albany's).*—Second Lieut. (temporary Capt. in Army) Christopher William Wilson (Flight Commander Royal Flying Corps, Military Wing), from Special Reserve of Officers, to be Lieutenant, and to be seconded. Dated Oct. 1st, 1914.

*The Gordon Highlanders.*—Lieut. Robert Ogilvie Abercrombey (Flying Officer Royal Flying Corps, Military Wing), from Special Reserve of Officers, to be Lieutenant, and to be seconded. Dated Oct. 1st, 1914.

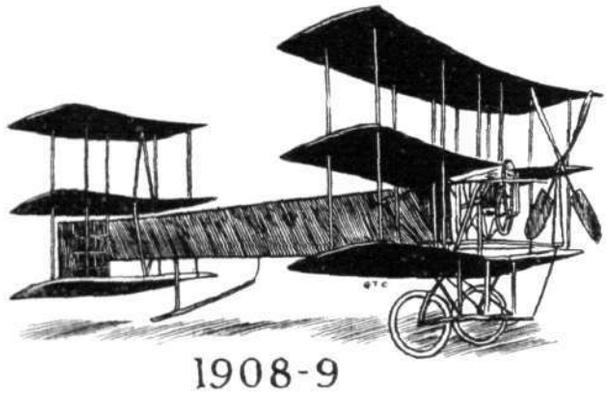


*Reproduced by permission of Messrs. Stanley Paul and Co., who publish the cartoons in a volume entitled "Kultur Cartoons."*

**A suggestive cartoon by Will Dyson, illustrative of the up-to-date methods of war practised by the Prussian Huns. This is one of twenty-five clever "Kultur cartoons" by Will Dyson, published as mentioned above, in a volume under that title.**

# MILESTONES.

IN reviewing the long list of modern successful aeroplanes, it is a little surprising to discover how comparatively few can trace their ancestry back, through generation after generation, so to speak, to a prototype which, although perhaps appearing somewhat crude and incomplete in many ways, viewed in the light of present-day knowledge of aeroplane design, had embodied in it nearly all the fundamental ideas that have contributed towards the success attained by its present-day descendants. One reason for the absence of "pedigree" in a good many successful modern machines is, no doubt, that of the pioneers that helped to make history in the earlier days of aviation, comparatively few are still numbered among the leading constructors, and of these again several are now producing machines which, although being classed among the very best of the day, cannot, strictly speaking, be said to be direct descendants of the original type. Among the British designers whose products can justly lay claim to being "Thoroughbreds" must be mentioned in the very front rank the Avros, in which the fundamental idea underlying the design can be traced very clearly back to the old machine on which A. V. Roe did his first flights, which, although they may not have been more than glorified "hops," were nevertheless, even compared to up-to-date achievements, remarkable performances, when it is remembered that they were coaxed out of a machine fitted with an engine of what seems to-day ridiculously low power. That the modern Avros have proved and are proving so successful is one more proof,



1908-9

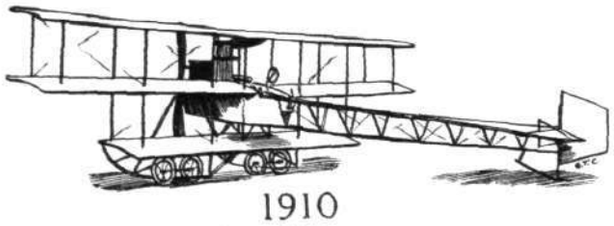
**Avro Milestones.**

if such were needed, that Mr. Roe had already, in those "dark ages," a thorough grasp of his subject, and was sufficiently far-seeing to choose as subject for his experiments a type which was capable of development. The fact that he had to not only overcome aerodynamical difficulties, but also to fight against financial handicaps makes his ultimate success all the more creditable.

It was in the dark ages when the man who had the temerity to venture the opinion that it was possible for man to fly was regarded by the majority of people as a dreamer and a crank, not to say worse, that A. V. Roe began his experiments. Accounts of his trials and triumphs, as well as of his adversities, are to be found in the first numbers of FLIGHT, and before the foundation of this journal in our sister journal the *Auto.*, and very interesting reading they make. The "Bull's Eye," or Roe 1 triplane, with which Mr. Roe carried out a number of experiments on Lea Marshes in 1908-09 was a very frail affair as will be gathered from the fact that it turned the scale at about 200 lbs. and had a surface of some 300 sq. ft. The body, which was triangular in section, was built up of *longerons* of deal, the whole being covered with cotton-oiled paper backed with muslin. The engine, a 10 (ten) h.p. Jap, was mounted in the nose of the body, and drove through a reduction gearing a four-bladed propeller. A two-bladed propeller was also tried, and the question of gear ratios, pitch, width of blades and diameter was made the subject of extensive tests, the results of which were carefully noted. The main planes, of which there were three, were swivelled round a horizontal axis, and were at the same time capable of being warped to maintain lateral stability. The triplane tail of the lifting type was rigidly attached to the rear end of the body, and steering up or down was effected by keeping the tail stationary whilst the main planes were swivelled around their axis in order to increase or decrease the angle of incidence. The warping of the main planes and the alteration of the angle of incidence were both effected by a single horizontal lever, whilst the vertical rudder at the rear of the tail planes provided horizontal directional control. The pilot was seated inside the triangular section body some distance behind the main planes, a position which proved very safe in the numerous accidents that were experienced. Several short flights were made on this machine in 1909, the two first of which ended in left hand side-slips, which were at the time thought to be due to the torque of the propeller, but were proved by later experience to be more probably caused by unskilful steering.

Several machines on similar lines were built, flown, damaged, rebuilt, flown, &c., during 1909–1910, in the course of which experiments the engine power was increased from 10 to 20 and 35 h.p. The next step in the development of the Avros was a new triplane that made its appearance in 1910. In this machine the span of the two upper planes was increased from 20 ft. to 31 ft., whilst that of the lower plane remained as before, 20 ft. The most important change in this machine in addition to the increase in span was the rigid attachment of the main planes to the body, and the substitution of *ailerons* for warping for lateral control. The triplane tail remained fixed, but steering up and down was effected by a rear elevator instead of by tilting the main planes. The engine fitted to this machine was a 35 h.p. Jap.

In the same year (1910), about a month later, another triplane made its appearance. In this several innovations were to be found, most notable among which was the fitting of a monoplane non-lifting tail instead of the weight-carrying triplane tail with which all previous Avros had been fitted. Another improvement was effected in the arrangements of the controls, which were in this machine made more to conform with standard



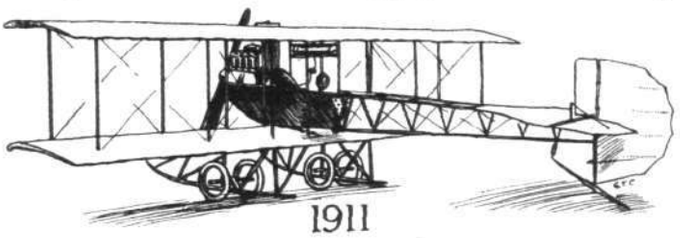
1910

**Avro Milestones.**

practice in that the warp and elevator were operated by a hand-wheel mounted on a single central vertical column, a to-and-fro movement of which actuated the elevator, whilst rotation of the hand-wheel operated the warp. A pivoted foot-bar controlled the single rudder working in

the opening between the two parts of the divided rear elevator. A Green engine of 35 h.p. was built into the nose of the body, and the radiator mounted between the two inner inter-plane struts above the centre plane. A considerable amount of flying was done on this machine before it was ultimately superseded by the graceful little biplane which even to-day would compare favourably with modern machines of the same horse-power.

It was in 1911 that the Avro biplane first came into being, and it soon became a very popular machine among

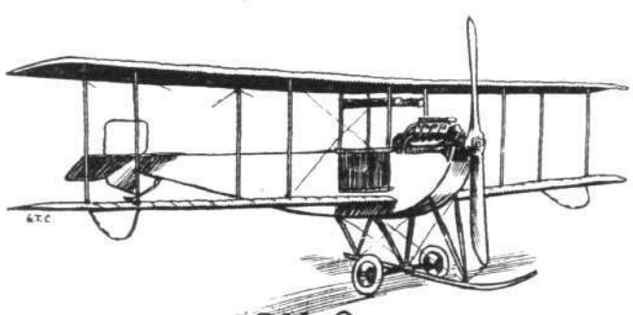


1911

Avro Milestones.

the Brooklands' pilots, some of whom, notably Pixton and Raynham, made some excellent flights on it in all sorts of weather, thus proving its airworthiness. The body of the biplane was of similar construction to that of the triplanes, that is to say, it was of triangular section built up of longitudinals connected by struts and wired diagonally. Only the nose of the body was covered in by fabric up to a point near the pilot's seat, the rear portion of it being left open. In the nose of the body, mounted on stout bearers, was the engine, a 35 h.p. Green. Pilot's and passenger's seats were arranged tandem fashion, the pilot occupying the rear seat just behind the trailing edge of the main planes.

The chassis was of the wheel and skid type, the latter projecting some distance out in front of the propeller, so as to protect this vulnerable member from damage in case of a rough landing. The tail planes consisted of a flat, non-lifting stabilising plane, to the trailing edge of which was hinged the divided elevator. The stern post of the body was extended up and down to form a pivot for the rudder, which worked in the opening between the two parts of the elevator. Control was by means of a single column surmounted by a hand-wheel, and a foot-bar operated the rudder. Lateral stability was maintained by warping the main planes, the rear spars being hinged at the end sections to avoid bending the spars, which were thus left rigid in the centre portion, whilst in the end sections they moved helically. The main planes were made in sections easily detachable, in order to facilitate



1911-2

Avro Milestones.

transport and storage. One of the best flights made on this machine was a cross-country trip from Brooklands to Brighton made by Mr. Pixton.

The next step in the evolution of the Avro biplane was another tractor biplane in which numerous alterations as regards component parts were carried out, but which was fundamentally a logical development of the machine already described. With a view to provide more comfort for the pilot than was afforded by the comparatively shallow body of the Green-engined biplane, the *fuselage* of the next one in the series was made of rectangular section and was very deep so as to leave only the pilot's head projecting above the top covering. As regards the main planes and tail planes no radical alterations were made, but the under-carriage, which was hitherto of the wheel and skid type, was superseded by one resembling that of the Nieuport monoplanes. A short central skid was carried on three pairs of V-struts, and served as an anchorage for the leaf spring axle that formed the shock-absorbing device. The great amount of flexibility of this type of under-carriage caused considerable controversy, some critics maintaining that it was too "squashy" to stand up to its work, others being of opinion that its flexibility was just its greatest advantage, as it saved the remainder of the machine from receiving any severe shocks in case of a rough landing. Passenger's and pilot's seats were arranged as before in tandem, with the passenger in front. The engine fitted was a 60 h.p. E.N.V.

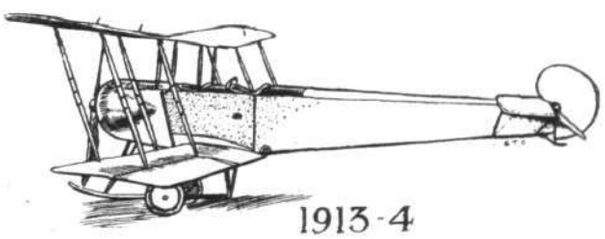
Then followed, in 1912, a very similar biplane in which, however, the body had been made considerably

1912

Avro Milestones.

wider, thus giving more elbow room for the occupants, but otherwise following the practice of the previous model. This type was fitted with a 50 h.p. Gnome engine, and a great number of the 50 h.p. type were sold to the Government and proved very successful.

Finally followed, in 1913, the latest type Avro biplane, which has proved by far the most generally successful of all the machines produced by this enterprising firm. In the latest type, the body has been redesigned, and, while retaining its rectangular section, is of a much more pleasing outline, as well as being possibly of a better streamline form. The main planes, which possess all the characteristics of the previous models as regards their plan form, are staggered, and the chassis, although being of a different form from that of the 50 h.p. type, is as



1913-4

Avro Milestones.

flexible as was the old one and a more satisfactory proposition from a practical point of view, having telescopic tubes and rubber shock-absorbers.

This, briefly, is, then, the history of the evolution of the Avro machines. True, Mr. Roe has produced other types, such as the enclosed monoplane, the all-enclosed biplane (which was never seriously considered by the authorities, although quite probably having in it the germ of the machine of the future), the "pusher" biplane exhibited at the last Olympia aero show, the small "arrow" type scouting biplane, and one or two others, but they are not, strictly speaking, part of the development of the Avros, being more to be considered as a side issue.

What the next type of Avro will be like is a matter for conjecture, but one can safely trust the versatile designer to produce something that will be as far ahead of the present machine as that was ahead of the one preceding it. Probably Messrs. A. V. Roe and Co. are too busy at present turning out their standard type to find the time for experimenting with new designs or testing developments, but when the war is over we may expect to see new models emanate from the busy Manchester works.

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## NEW YEAR HONOURS.

IN the list of New Year Honours appeared the following announcements affecting officers and men of the Royal Naval Air Service and the Royal Flying Corps (Military Wing). The naval promotions issued on New Year's Day will be found as usual under the heading "The British Air Services" on p. 20 :—

The King has been graciously pleased to give orders for the following appointments to the Distinguished Service Order in respect of the undermentioned officers of the Royal Naval Air Service :—

To be companions of the Distinguished Service Order :
Squadron Commander Edward Featherstone Briggs.
Flight Commander John Tremayne Babington.
Flight Lieutenant Sidney Vincent Sippe.

The King has been graciously pleased to confer the Military Cross upon the undermentioned Officers and Warrant Officers of the Royal Flying Corps (Military Wing), who have been duly recommended for the same under the terms of the Royal Warrant :—

Lieutenant (temporary Captain) A. H. L. Soames, 3rd Hussars (Flight Commander).

Lieutenant (temporary Captain in Army) C. W. Wilson (R.F.C. Special Reserve).

Lieutenant (temporary Captain in Army) E. L. Conran, 2nd County of London Yeomanry (Flight Commander).

Serjeant-Major D. S. Jillings.

Serjeant-Major J. Ramsay.

Serjeant-Major E. J. Parker.

His Majesty the King has been graciously pleased to approve of the appointment of the undermentioned Officer of the Royal Flying Corps (Military Wing) to be Companion of the Distinguished Service Order, in recognition of his services with the Expeditionary Force, specified below :—

Lieutenant (Temporary Captain) Donald Swain Lewis, Royal Engineers.

For valuable information repeatedly furnished to the Royal Artillery in regard to the position of the enemy's guns. His direction of our artillery fire, whilst flying, has constantly led to direct hits on the enemy's batteries and the silencing of their guns.

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## THE ROYAL FLYING CORPS AID FUND.

A LARGE number of letters expressing the sincere gratitude of the men of the R.F.C. have been received by Lady Henderson and the Committee of the R.F.C. Aid Fund. Each individual man received at the beginning of the cold weather a No. 1 parcel containing : Sweater or shirt, muffler, handkerchief, pair of socks, pair of gloves or wristlets, towel, helmet, body belt, packet of cigarettes (20), pair of boot laces, two pieces of writing paper and envelopes, pencil, pipe, ¼ lb. tobacco, ½ lb. chocolate, sweets, Novio, piece of soap. Since then a fortnightly No. 2 parcel has been sent containing handkerchief, ½ lb. chocolate, Oxo, peppermints, soap, packet of cigarettes, packet of cigarette papers, matches, writing paper, Novio, pair socks. In addition to these comforts the men's Christmas dinners were supplemented by 500 plum puddings.

On behalf of the men of the Royal Flying Corps and of herself and her committee, Lady Henderson takes this opportunity of thanking all those who have so generously responded to her appeal. It is her earnest desire to continue this work throughout the war, and she feels confident that she can always rely on the support of the public and their sympathy with her efforts.

A list of all those who have contributed to the fund, either in money or in kind, will shortly be published, but owing to lack of space, it will be impossible to give more than the names of those who have sent gifts of clothing and other comforts. Should there be any of the public who wish to make further contributions in kind, it is suggested that their selection should be made from among the articles which are described as being in either parcel No. 1 or parcel No. 2.

Lady Henderson will be glad to give details as to size, colour, &c., for the guidance of those who are desirous of making any of these articles.

It may interest those who are concerned with aviation to know that among the many subscribers to the Fund are : Employees Aircraft Manufacturing Co., £21 14*s.* 7*d.* ; Ditto, £14 15*s.* 2*d.* ; Five American Aviators, £3 18*s.* 1*d.* ; Grahame-White Aviation Co., £25 ; Employees Vickers Aviation Dept., Erith, £4 13*s.* 9*d.* ; Vickers, Ltd., £52 10*s.* ; Employees Sopwith Aviation Co., £16 19*s.* 3*d.* ; Employees Royal Aircraft Factory, 100 helmets, 100 socks and 50 mufflers, and £1 9*s.*

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### The Roll of Honour.

IN the casualties in the Expeditionary Force reported from General Headquarters under date of December 30th was the following :—

**Missing.**

Capt. W. Picton-Warlow, Royal Flying Corps.

In the casualties reported from General Headquarters under dates of January 2nd and 3rd was the following :—

**Killed.**

Capt. W. Lawrence, Royal Flying Corps.

### The Rescue of Flight Commander Hewlett.

AFTER being given up as lost, Flight Commander F. E. T. Hewlett arrived in London on Sunday night, so that all the pilots who took part in the R.N.A.S. raid on Cuxhaven have returned safely. It appears that after losing his way in the fog he had to alight on the sea, owing to engine trouble. He was fortunately sighted by the Dutch trawler Marta van Hattem, and after vainly endeavouring to repair his machine he sunk it and went on board the trawler. The boat remained out fishing until New Year's Day, when Flight Commander Hewlett was landed at Ymuiden. It was reported from Amsterdam on Friday, that H.M. King George had sent the following telegram :—

"I am delighted and greatly relieved to hear that you are safe, and heartily congratulate you.—GEORGE R.I."

After complying with the necessary formalities, Flight Commander Hewlett went to The Hague, and having received his passports returned to England by the Hook of Holland boat on Sunday.

# AIRCRAFT WORK AT THE FRONT.

## OFFICIAL INFORMATION.

THE subjoined memorandum from the Director of the Admiralty Air Department appeared in a supplement to the *London Gazette* published on January 1st :—

"December 17th, 1914.

"On November 21st, 1914, Squadron Commander E. F. Briggs, Flight Commander J. T. Babington, and Flight Lieutenant S. V. Sippe, Royal Navy, carried out an aerial attack on the Zeppelin airship sheds and factory at Friedrichshafen on Lake Constance.

"Leaving French territory shortly before 10 a.m., they arrived over their objective at about noon, and, although under a very heavy rifle, machine-gun, and shrapnel fire from the moment they were sighted, they all three dived steeply to within a few hundred feet of the sheds, when they released their bombs—in all eleven.

"Squadron Commander Briggs was wounded, brought down, and made a prisoner, but the other two officers regained their starting-point after a flight of more than four hours across hostile country under very bad weather conditions.

"It is believed that the damage caused by this attack includes the destruction of one airship and serious damage to the larger shed, and also the demolition of the hydrogen-producing plant, which had only lately been completed. Later reports stated that flames of considerable magnitude were seen issuing from the factory immediately after the raid."

In the despatch dated December 31st from the "Eyewitness" present with the British Headquarters, issued through the Press Bureau on January 2nd, there was the following :—

"On Wednesday, the 30th, to our north the German aviators displayed more activity than they have lately shown, dropping bombs on Dunkirk and Furnes. The day was bright and frosty, favouring aerial reconnaissance."

In the *communique* issued in Paris at 3 p.m. on January 1st, there was the following :—

"Our aviators made a night bombardment of the railway stations of Metz and Arnaville."

The following appeared in the despatch from the French "Eyewitness" with the troops, issued in Paris on December 30th :—

"Notwithstanding the extreme difficulty caused by clouds, rain, fog, and wind, our squadrons of aeroplanes and dirigibles have done excellent work. One of the latter on the night of the 17th dropped 15 bombs on the railway station at Sarrebourg, and on that at Petit Eich five bombs, and 1000 arrows on a train in the station at Helming. The damage done was considerable, and admitted by the German newspapers.

"On several occasions, on the 18th, 20th, 21st, and 22nd, our aeroplanes chased the German machines, and compelled them to land. On the 18th one of our aviators killed by rifle shots a German pilot, whose machine was ultimately smashed on the ground. Another near Arras put to flight a hostile aeroplane by firing 20 carbine shots at it. On the 22nd another of our officers, pursued by an Albatros, succeeded in bringing back to our lines his machine that was badly damaged by the bursting of shells.

"Several aeroplanes, notwithstanding the state of the atmosphere, threw bombs and arrows on the trenches on the 18th, on massed troops of the enemy on the 19th and 20th, on railway stations and trains on the 20th and 22nd, on a captive balloon on the 25th, and on Strasburg and the railway station at Dieuze on the 22nd.

"The Prince of Teck has expressed his sincere thanks to the chief of the aviators who have been operating on the Belgian coast in conjunction with the British naval squadron. These aviators have, indeed, done useful work in regulating the range of guns and watching the enemy's submarines."


**WINGED.—A German Taube in the tree tops.**

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## THE FLYING SERVICES FUND.

*Organised and Administered by the Royal Aero Club for the Benefit of the Royal Naval Air Service and the Royal Flying Corps.*

SOME time ago Mr. André Michelin, Chairman of the Michelin Tyre Co., approached the Royal Aero Club, with regard to a suggestion he had made to the Admiralty and War Office, that a general fund be established,

"the proceeds of which would be distributed at the end of the war to all British aviators (or their dependents) having accomplished deeds of daring."

Mr. Michelin offered to open the fund with a contribution of £1,000, and asked The Club to undertake the organisation and administration of the Fund.

The Lords Commissioners of the Admiralty and the Army Council, while appreciating Mr. Michelin's generosity, did not think it advisable to establish such a fund, but the following suggestions were made :—

(1) By the Lords Commissioners of the Admiralty—

A General Fund for the benefit of the Royal Naval Air Service to supplement the provision for officers, and especially men, of the Air Service who are permanently prevented by wounds or injuries, received on duty, from contributing to their own support; and for the wives and dependents of those killed in action.

(2) By the Army Council—

A General Fund for the benefit of the Royal Flying Corps to be devoted to the provision of pensions for military aviators permanently incapacitated, and for the families of such as are killed; but it is suggested that the rank and file should be the first to benefit.

Mr. Michelin concurred with these suggestions and confirmed his offer to subscribe £1,000.

The Lords Commissioners of the Admiralty and the Army Council approved of the Fund being administered by the Royal Aero Club, and The Club then agreed to organise and administer the Fund.

A general appeal for subscriptions will be issued shortly.

## SPECIAL COMMITTEE MEETING.

A Special Meeting of the Committee was held here on Tuesday, the 5th inst., when there were present: Col. H. C. L. Holden, C.B., F.R.S., in the Chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Prof. A. K. Huntington, Mr. C. F. Pollock, and the Assistant Secretary.

**Election of Member.**—The following New Member was elected :—

Claude Francis Strickland.

**Aviators' Certificates.**—The granting of the following Aviators' Certificates was confirmed :—

1003 Flight Sub-Lieut. George Fred Breese, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Dec. 19th, 1914.

1004 Flight Sub-Lieut. Gerald Edward Livock, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Dec. 20th, 1914.

1005 Flight Sub-Lieut. Douglas Meston Barnes, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Dec. 20th, 1914.

1006 Geoffrey Harold Brinkman McCall (Maurice Farman Biplane, Military School, Brooklands). Dec. 20th, 1914.

1007 Gino Virgilio (Wright Biplane, Beatty School, Hendon). Dec. 20th, 1914.

1008 Ernest Alfred Edward Wood (Maurice Farman Biplane, Military School, Brooklands). Dec. 21st, 1914.

1009 Flight Sub-Lieut. Walter Shackfield Newton-Clare, R.N.A.S. (Short Biplane, Royal Naval Flying School, Eastchurch). Dec. 20th, 1914.

1010 Flight Sub-Lieut. Thomas Kenneth Young, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Dec. 21st, 1914.

1011 Melville Richard Allen (Maurice Farman Biplane, Military School, Brooklands). Dec. 22nd, 1914.

1012 Leo Francis Page (Maurice Farman Biplane, Military School, Brooklands). Dec. 22nd, 1914.

1013 Lieut. King Davie Harris (K.O. Scottish Borderers), (Maurice Farman Biplane, Netheravon Flying School, Netheravon). Dec. 22nd, 1914.

1014 Flight Sub-Lieut. Harold James Batchelor, R.N.A.S. (Short Biplane, Royal Naval Flying School, Eastchurch). Dec. 22nd, 1914.

1015 Ralph Christopher Freeman (Maurice Farman Biplane, Military School, Brooklands). Dec. 22nd, 1914.

1016 Lionel Macdonald Wells Bladen (Maurice Farman Biplane, Military School, Brooklands). Dec. 22nd, 1914.

1017 Flight Sub-Lieut. William Laurie Welsh, R.N.A.S. (Short Biplane, Royal Naval Flying School, Eastchurch). Dec. 22nd, 1914.

1018 Thomas Vaughan Lister (Bristol Biplane, Royal Naval Aviation School, Hendon). Dec. 23rd, 1914.

1019 Flight Sub-Lieut. Arthur Quilton Cooper, R.N.A.S. (Bristol Biplane, Royal Naval Aviation School, Hendon). Dec. 23rd, 1914.

1020 Flight Sub-Lieut. Charles Beauvoir Dalison, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Dec. 24th, 1914.

1021 2nd Lieut. Percy Gilbert Ross-Hume (Maurice Farman Biplane, Netheravon Flying School, Netheravon). Dec. 24th, 1914.

1022 Herbert Prinsep Somers Clogstoun (Maurice Farman Biplane, Military School, Brooklands). Dec. 24th, 1914.

1023 Robert Hobart Mayo (Maurice Farman Biplane, Military School, Brooklands). Dec. 24th, 1914.

The following Aviators' Certificates were granted :—

1024 Lieut. Richard Williams, Jun. (Commonwealth Military Forces) (Bristol Biplane, Central Flying School, Werribee, Australia). Nov. 12th, 1914.

1025 Capt. Thomas Walter White (Commonwealth Military Forces) (Bristol Biplane, Central Flying School, Werribee, Australia). Nov. 14th, 1914.

1026 Lieut. George Pinnock Merz, M.B., B.S. (Bristol Biplane, Central Flying School, Werribee, Australia). Nov. 14th, 1914.

1027 2nd Lieut. David Thomas William Manwell (Bristol Biplane, Central Flying School, Werribee, Australia). Nov. 16th, 1914.

1028 John Whitaker Woodhouse (Farman type Biplane, Pashley Bros., and Hale, Shoreham). Dec. 22nd, 1914.

1029 Clarence Arthur Charles Winchester (Farman type Biplane, Pashley Bros., and Hale, Shoreham). Dec. 22nd, 1914.

1030 Lieut. Arthur Leslie Donaldson (Rifle Brigade) (Maurice Farman Biplane, Netheravon Flying School, Netheravon). Dec. 26th, 1914.

1031 Lieut. William Bowen Hargrave (Suffolk Regiment) (Maurice Farman Biplane, Central Flying School, Upavon). Dec. 31st, 1914.

1032 2nd Lieut. Ewart Douglas Horsfall (Rifle Brigade) (Maurice Farman Biplane, Central Flying School, Upavon). Dec. 31st, 1914.

**Acting Vice-Chairman.**—On the motion of Mr. Pollock, seconded by Mr. Bucknall, it was unanimously resolved :—

"That Professor A. K. Huntington be appointed Acting Vice-Chairman for the period up to the next election of The Committee."

166, Piccadilly, W. B. STEVENSON, Assistant Secretary.

## Pay of French Aviators.

IT was reported from Paris on Monday that the pay of French military aviators is, from the beginning of the year, and for the duration of the war, to be substantially increased.

Qualified pilots of the rank of non-commissioned officers will henceforward receive 4 francs a day, corporals and privates 2 francs. The allowances to pilots while training are to be equal to the half of those allocated to qualified men.

# FROM THE BRITISH FLYING GROUNDS.

**Bowness-on-Windermere.**

**Northern Aircraft Co.**—On Monday, last week, Mr. W. Rowland Ding gave an exhibition of flying during the morning and afternoon. His banked turns and switchbacks were not only proof of his own ability, but showed clearly what one of the ordinary school biplanes, which he was flying, was capable of. The weather has not been very good, but tuition has been given on Monday, Tuesday and Thursday. Mr. Lashmar (135 mins.) has been out alone, and is shaping exceedingly well. Railton was out on Tuesday with Mr. Ding, taking partial control. The school will soon be very busy, as a number of new pupils have signed on, and four machines will be ready for their use. It is interesting to note that they consist of tractor monoplane, tractor biplane, pusher monoplane, and pusher biplane; in fact, as one of our visitors in khaki remarked, "It's a complete bloomin' aviary!"

**Brighton-Shoreham Aerodrome.**

**Pashley Bros. and Hale School.**—J. Sibley, G. Charley, A. Goodwin up with instructor last week. Circuits, &c.: J. Morrison, Menelas Babiotis, T. Cole. Machines in use: H. Farman, Pashley and Avro biplanes. On Tuesday a calm of three hours took place, and consequently all the machines were busy. Eighty-six ascents were made, with marked improvement to all the pupils.

**London Aerodrome, Collindale Avenue, Hendon.**

**Grahame-White School.**—Owing to wind and rain school work last week only possible on Monday and Thursday.

Instructors for week: Messrs. Manton, Winter and Russell.

On Monday, straights with instructor: Probationary Flight Sub-Lieuts. Bessom, Digby, Reed and Walmesiey. Circuits: Probationary Flight Sub-Lieuts. Driscoll and Mills.

Thursday, straights with instructor: Probationary Flight Sub-Lieuts. Digby, Reed, Walmesley, Bessom. Passenger flights, Flight Sub-Lieuts. Digby and Mills. Circuits: Probationary Flight Sub-Lieuts. Mills and Driscoll.

**Beatty School.**—Owing to the very bad weather experienced during last week only a small amount of school work was possible. The following pupils received flying instruction on the two-seater machines, fitted with "dual" controls:— Messrs. C. Leeston-Smith (6), Sub-Lieuts. J. D. Newberry (15), E. T. Anstey-Chave (8), G. Donald (12), Lieut. Bannatyne (20), G. Merton (26), A. G. Hayward (10), V. E. Fanning (10).

The new biplane, fitted with a 60–70 h.p. Wright engine, is now ready, and will be put into commission early in the week. With this machine training will be possible every day irrespective of the weather conditions.

**Hall School.**—J. Rose and J. L. Hall instructors during last week in Hall machines. Straights by Lloyd Williams, 8 mins., excellent flights 20 mins.; Connochie, 6. Owing to weather conditions, there has been very poor pupil attendance, but workshop construction has been going apace on new two-seater.

**London and Provincial Aviation Co.**—Instructors at work during last week: Messrs. W. T. Warren and M. G. Smiles. Pupils receiving instruction on L. and P. biplanes: Messrs. Abel, Laidler, England Derwin, Moore, Collett (new pupil). Weather during the week mostly unfavourable.

**Ruffy School.**—Pupils receiving instruction last week: Messrs. Aoyang, Grahame, Donald, Marriott, Kenworthy Instructors: Herbert James and Howard James. Machines in use: 60 h.p. Gnome-Caudron, dual control, and 45 h.p. Anzani single-seater.

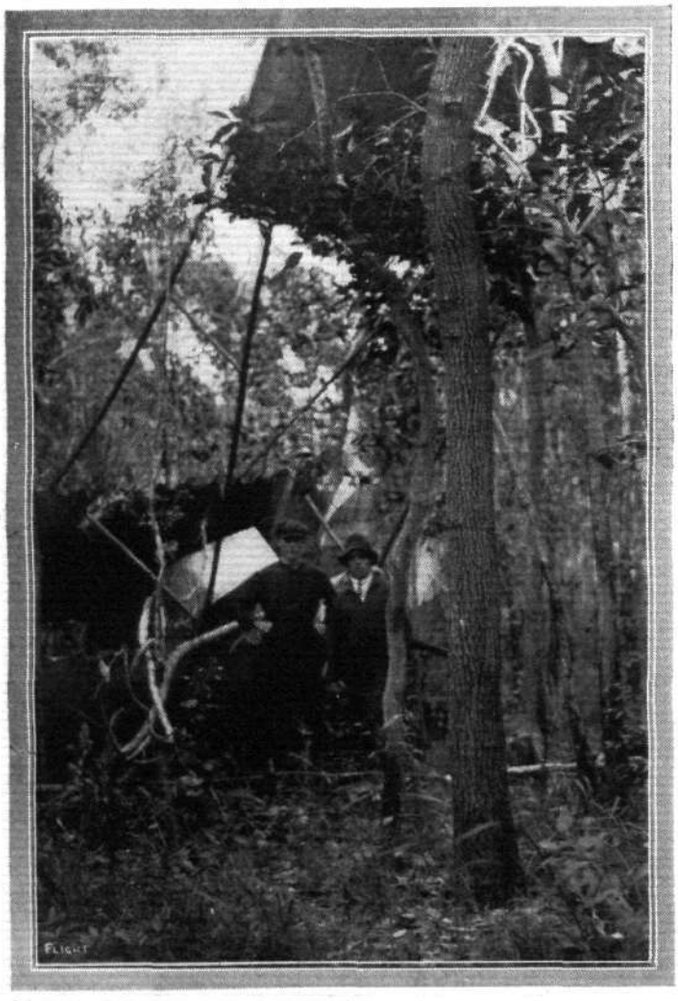

**Mr. Clarence Winchester, who has done considerable journalistic work in connection with aviation over the signature of "Ornis," and has just secured his pilot's certificate at the Pashley Flying School, Shoreham. In the passenger's seat is Mr. Winchester's wife, who is as keen on flying as her husband.**

# EDDIES.

MR. A. W. JONES continues to do a lot of good missionary work in Australia, where, it will be remembered, he is flying a Caudron biplane. In a letter from Brisbane, Mr. J. Morgan, his manager, gives the following account of some of Mr. Jones's experiences :—"People came 200 to 300 miles to see the flights in North Queensland, the Caudron being the first machine to fly in 'Caions.' It was a very bad day, blowing 40 m.p.h., and the country round was heavily timbered. After going about 10 miles Mr. Jones decided to land in a sugar plantation, but was upset before reaching it. It took about two hours to find the machine, as we had to force our way through dense scrub. The pilot was not anywhere about, and we got rather scared, as there was a swamp infested with alligators near by. (I shot one myself two days afterwards, measuring 12 feet.) Mr. Jones eventually turned up at a Chinaman's camp, where, it appears, he had been carried unconscious by two Chinamen, but he quickly recovered and was quite unhurt. It took two days to rescue the bits of the machine, as we had to chop our way through two miles of scrub.

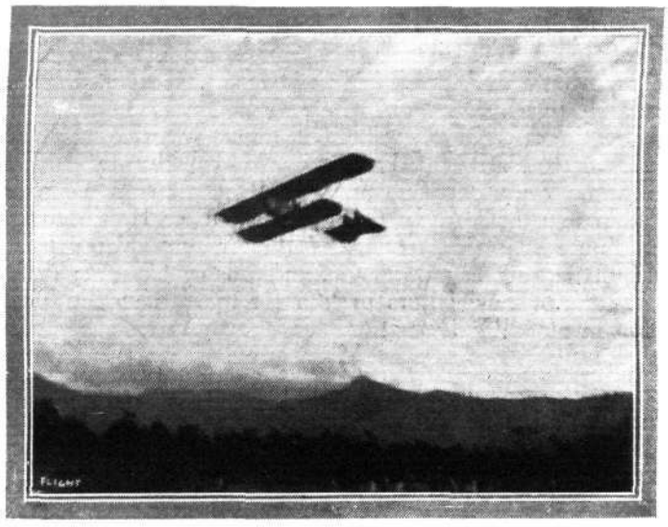
"Some aboriginals put us on the track of the machine, saying that they saw 'big hawk' fall, but we could not persuade them to go anywhere near it."

One of the photographs which appear on this page is helpful in emphasising Mr. Jones's little adventure.



**Mr. A. W. Jones' machine in trouble in the wilds in North Queensland.**

It is inevitable that where so many machines are in the air or "rolling" along the ground as is the case at Hendon, there must frequently be narrow squeaks, and it speaks volumes for the "quality" of the numerous pupils and pilots that so far few serious accidents have occurred. On Saturday last I happened to witness a pretty close thing which, but for the skill and presence of mind of the pilot, would most certainly have resulted in a very bad smash. The Handley-Page biplane, which has been taken over by the Naval authorities, was approaching the enclosure from the centre of the aerodrome at a height of about 40 or 50 ft., when the engine commenced to slow down. There was not sufficient room to finish in a straight glide without running into the railings, and the pilot took the only possible course open to him in the circumstances; he kept his engine running, and by ruddering vigorously to the left and at the same time putting on full warp, he managed to turn the machine sharply to the left between the railings and No. 1 pylon, although by this manœuvre he ran great risk of doing a "cartwheel," as the lower wing tip was only a few feet off the ground. However, the machine was successfully flattened out and proceeded parallel to the enclosures, at the top of which two Avros were at rest. The first of these was cleared by a matter of inches almost, but the second one, which the pilot was unable to see owing to the *cabré* position of his machine, was struck by a wing tip and spun round until it faced the opposite way. The H.P. finally drew up a few feet beyond the Avro, the only visible signs of the collision being a couple of broken struts and a damaged wing tip.



**Mr. A. W. Jones' Caudron biplane in flight in North Queensland. This was the first aeroplane to fly in Caions.**

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Another close shave, also due to engine failure, was experienced by Mr. H. James of the Ruffy school the other day when finishing a flight with a pupil. He was flying rather low beyond the railway, when his engine "kicked the bucket," as he himself put it, and before he could manage to steer back into the aerodrome the machine had dropped so low that it looked very like landing on the railway track just in front of an approaching train. By jerking his control lever back smartly, however, James managed to make her "jump" the track,

although as a result she lost headway and sat down somewhat heavily just inside the railway line. In this case a few broken struts and skids were the only damage, and a couple of days in hospital saw the machine in flying trim again.

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Things are humming at the Beatty school, some trials having been made with the new 4-cyl. Beatty engine, while the 6-cyl. Wright, after being considerably delayed in transit, has put in an appearance at the Hendon sheds. Before it can be installed in the Wright biplane that has been waiting for it for some time, there are one or two little matters to be looked to, necessitated by its rather eventful trip from over yonder. As to the Beatty engine, the trials, I am told, gave very promising results. During the first one, which was of about 1½ hours' duration, the revolution indicator hung around the 1450 mark; whilst in the second run, after a few adjustments had been made, the indicator hand moved up to the neighbourhood of 1600 r.p.m. When one or two minor adjustments, such as stronger valve springs and other slight alterations incidental to the tuning up of a new engine have been made, it is confidently anticipated that even better results will be obtained.

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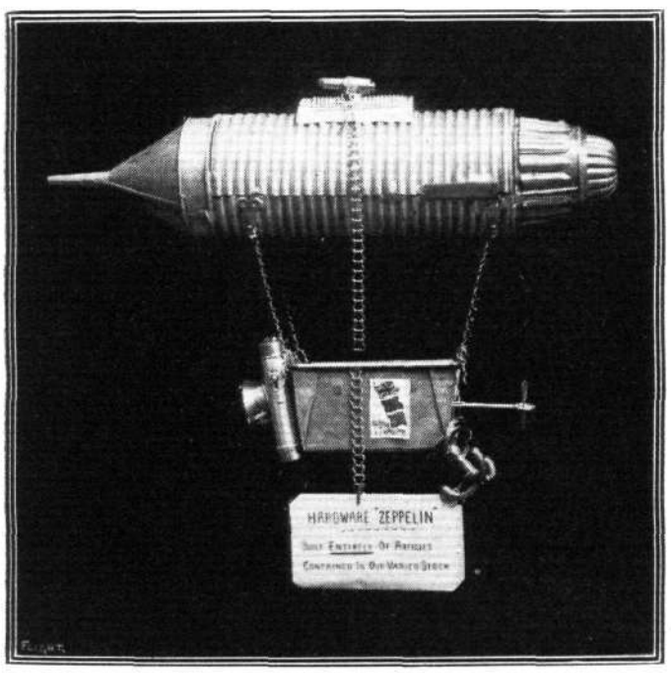
Among the many and far-reaching effects of the war one concerns the character of the decoration of shop windows, which have all taken on a more or less Service aspect. A hardware dealer in Manchester, realising the great interest taken by the public in aircraft, has adorned his windows with the ingeniously constructed "British-




A Christmas "Zeppelin," ingeniously constructed from various articles in a hardware shop.

built Zeppelin" seen in the accompanying photo. The "Zep" is made up of such household articles as roll-bread tin, funnel, jelly mould, nutmeg grater, door buffer, picture hooks, picture wire, door wedge, picture chain, electric flash lamp, egg whisk, and revolving wardrobe hook.

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The British Caudron Co. have now taken possession of their new works at Cricklewood formerly occupied by Messrs. Morgan and Sharp, motor body builders. The new premises, which are sufficiently roomy to allow of manufacturing and erecting a number of machines simultaneously, are ready equipped with the various pieces of machinery invaluable to the aeroplane constructor, such


The new British Caudron works in the Edgware Road, now in full operation.

as band and circular saws, planers, spindle machines, acetylene welding plant, &c., so that construction can be commenced immediately. In fact, I understand that a number of machines have already been put in hand, and will be completed as speedily as possible, which, with the plant already at their disposal, should mean a matter of a few weeks only. The new machine that was being built at the old works at Hendon has been put on one side for the moment in order to concentrate all energies on the standardisation of one of the older proved models. The engines fitted to the batch in hand will, I am told, be Gnomes and Le Rhones, and the machines are of a type similar to the 70 h.p. Gnome-engined biplane belonging to the Royal Naval Air Service, which is characterised by the triangular fins in front of the rudders.

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It has been generally considered by those fortunate (or unfortunate) enough to enjoy (or otherwise) the sight of his multi-coloured pedal extremities, that Manton had reached the limit in ankle decorations, and that further no man could go; but a lady admirer has sent him as a Christmas present a pair of socks, the like of which has never been (and, let us hope, never again will be) seen. It would be futile to attempt a description of the colours, as these include all contained in the rainbow and a few others. If FLIGHT had only made it its policy to print colour blocks I should have tried to persuade the Editor to illustrate them in actual size, and in position on a shapely ankle, but as this is out of the question, my readers will have to take my word for the colour scheme. As for the pattern, I was unable to discover the *motif*, but I have no doubt that there is one. Perhaps a futurist artist might solve the problem. Among the figures that go to make the pattern I will mention a few that I remember, but do not pretend to give an exhaustive list of all included: Arrows, squares, circles, diamonds, suns, stars, moons, comets, &c. It has been rumoured that nearly all the *habitués* at Hendon have had to wear smoked glasses when Manton dons his Yule Tide gift, but this is probably only a rumour started by some envious sole—I mean soul.

"ÆOLUS."

# AIRCRAFT AND THE WAR.

THE following extracts are from a letter written to a friend recently by an officer of the Garrison Artillery who is at the front :—

"Our aeroplanes are still doing splendid work, despite the high winds that prevail and the general unsuitability of the weather. Their tasks are many and various. Every morning they reconnoitre the enemy's country usually facing a heavy fire of shell, rifle bullets, and machine guns. When their report comes in any change of batteries is noted, and our batteries are ranged on new targets. They have also been instrumental in bringing to earth several German captive balloons which are used for the purposes of observation by the enemy. Last of all, they patrol our lines, and tend to prevent any hostile aircraft penetrating them.

"I saw a fine piece of work of this kind by one of our aviators yesterday. A fairly fast German biplane of a new pattern came over our lines. A strong wind was blowing from the enemy's lines to our lines. The German plane therefore appeared very rapidly. One of our Bristol planes rose and began to catch up in order to get above the enemy, and this movement was fraught with considerable danger to our airman as the German did his best to prevent it by rifle and revolver fire from his machine. At last, however, our biplane got on the same level as the German. The German then attempted to make for his lines, but, thanks to the adverse wind and the skill of our fellows he was absolutely prevented from making any headway. It was really a very thrilling sight watching these two biplanes. The German would dodge from side to side, then plane down and make off in another direction, whilst our plane would combat every move of the enemy in a most splendid fashion. It reminded one of a hawk circling round a crow. At last the German gave it up and planed down and landed behind our lines. He was not wounded at all but utterly beaten, and, as I heard one man express it, "he came down with cold feet."

In the *Japan Weekly Mail* of December 5th, there was the following :—

"The aviation grounds at Oppama, Yokosuka, rang with 'Banzai!' on the morning of November 30th, when Commander Yamaguchi, Lieutenant-Commander Kaneko, Lieutenants Wada, Yamada, Kono and Inouye, and other officers and men of the Naval Aerial Corps, who played so prominent a part in the blockade of Tsingtao, were welcomed on their triumphal return by those of the corps who had remained at home. The victors then paid a visit to the Admiralty Office, where Vice-Admiral Ijichi, Commander-in-Chief of the Admiralty, congratulated them on the successful accomplishment of their mission."

Mr. Pecival Phillips, writing to the *Daily Express* from the Belgian Frontier on December 28th, said :—

"Two more aeroplanes, it is reported to-day, have arrived at Heyst by rail from Germany, presumably for use in further aerial raids on England. The inhabitants near here saw what apparently were short trial flights above the plain between Bruges and the sea on Sunday. The German frontier guards kept an especially strict surveillance to-day on the roads leading to Holland from Western Flanders, especially north of Zeebrugge and Westchapelle. The increased severity by the frontier patrols is, doubtless, intended to prevent details of the plans for air manœuvres reaching the Allies through neutral territory."

Writing from Dunkirk on December 30th, Mr. Basil Clarke, the *Daily Mail* correspondent, thus described the German aerial attack on the place :—

"In answer to our waterplane raid on Cuxhaven German aeroplanes to-day raided Dunkirk, and for more than half-an-hour were dropping bombs all over the town. The visiting fleet comprised four aeroplanes, both Taubes and Aviatiks, which flew several times across the city, dropping bombs on each journey. Soldiers in the streets replied with vigorous rifle fire, but the aeroplanes sailed calmly on. One seemed to have been hit, for he turned on his head and descended several hundred feet before righting himself. All got safely away.

"For the half hour the city was in a state of much excitement, and the flight of each aeroplane was watched with the keenest anxiety. People immediately underneath scattered, running breathlessly into houses and shops. The bombs fell first on one side and then on another. No sooner did one aeroplane seem to be departing than another arrived. The whole city crackled with rifle shots and bombs, which threw up dense clouds of black smoke. Buildings and windows were smashed in all directions, and the tramway lines at one place were cut clean through. The killed and wounded numbered nearly 50.

"The first bomb fell on the fortifications and two more near the railway station, another in the Rue Caumartin, and another in the kitchen of the military hospital; another near the town hall, others in the Rues Pierre and Nieuport, and the last near the arsenal. Two fell in the suburb of Rosendael, on a jute factory. The districts of Coudekerque and Furnes also suffered, and many were wounded there. One child had an arm blown off, while another, with an old woman, was killed outright, being dreadfully disfigured. The bombs were filled with shrapnel, which pitted the walls and buildings. A horse in the Rue Nieuport, close to the spot where a bomb fell, was mutilated. British ambulances carried the sufferers to hospital; some were dead on arrival.

"The official return of casualties up to four o'clock was 15 killed, 32 wounded. A fifth German aeroplane remained as sentry outside the town and taking no part in the raid, but holding itself in readiness to attack any of the Allies' aeroplanes seeking to repel the invading fleet."

A correspondent of the *Matin*, in an account of the attack on Steinbach on December 30th, stated that the denseness of the fir forest in which the German artillery was concealed rendered aeroplane reconnaissance almost impossible.

In a message received in London on December 31st from Mr. Alan Bott, the *Daily Chronicle* correspondent at Basle, it was stated :—

"Another new Zeppelin has just left Friedrichshafen 'for an unknown destination.' As usual it has been tested two or three times over the Lake of Constance, some of the torpedo-shaped bombs being dropped on floating targets. . . .

"So far none of the improved Zeppelins has been used. Those that had done raiding and reconnoitring work in Poland and France are of the old type, constructed before the war. Most estimates put the number of new super-Zeppelins at 15 to 20. Every three weeks a new one is dragged from its closely guarded shed and put through its paces over the lake. Owing to the spy scare great care is taken to keep it away from the neighbourhood of the Swiss shore. Then it makes a flight at night time, and after being brought out again for bomb-dropping practice, it leaves for an 'unknown destination.' This 'unknown destination' is part of the mystery. The workmen do not known where the results of their labours are stored. This much is certain—it would never do for British and Freneh airmen to find out. There is talk of great air bases near Hamburg, Namur, Antwerp, Brussels, and other towns hundreds of miles apart. There is talk of new sheds to the north of Zeebrugge. There is talk of trial evolutions over the Kiel Canal and the Baltic, in conjunction with submarines and warships. . . . .

"Friedrichshafen, the birthplace of the super-Zeppelins, is far more concerned about air raids than London. Since one of the three construction sheds was all but destroyed by British aviators, the town has been kept in darkness during the late evening and night. Searchlights are kept ready, although they are not used for fear of attracting attention. All the sheds in the dockyard, besides the great gas building, are carefully protected by metal coverings. Count Zeppelin is himself in Friedrichshafen at present."

Advices were received in Paris on January 1st that several towns in the East of France had been visited by German aviators. One flew over Bruyères and dropped bombs, without doing any damage, while another appeared at Nancy and was driven away by artillery fire. A third at Dounoux flew over the town and disappeared followed by artillery fire.

A *Times* correspondent, writing from Nancy on January 1st, thus described the recent work of aircraft in the neighbourhood :—

"During the last few days both sides have been showing a good deal of activity in the direction of Metz. The French airmen, to begin with, have carried the war in the air into the enemy's country to some purpose. Yesterday morning, at the regulation hour, just before 12, Nancy was visited by yet another aeroplane, and enjoyed the most exciting *tir à Taube* that it has yet seen. The gunners at Malzéville, firing shrapnel with beautiful precision, gave the inquisitive enemy a very warm quarter of an hour. The shells kept bursting all round it. There were often three or four ragged puffs of brown smoke in the air at the same time, only just above or below or behind or in front of it, and it seemed as if one of them must bring it down. However, it had the luck its daring deserved, and escaped untouched, though it was forced to give up its intended

flight over the town, and to turn and head for the frontier without dropping any bombs.

"The French Flying Corps have been more successful in their invasions of German territory. Two or three days before Christmas the Tou ldirigible, the 'Adjudant Vincenot,' dropped a number of explosive bombs on the station at Saarburg and several parts of the line between Saarburg and Avricourt. On December 26th a large detachment of aeroplanes paid a visit to Metz, and bombarded the hangars of the dirigibles at Frescati, the barracks at St. Privat, and one of the railway stations—the ugly building which the Germans put up after the Franco-Prussian War at the east end of the town. The station was particularly badly damaged.

"Several of the arches supporting the roof of the central hall were sent crashing on to the line, and the heavy piles of masonry and ironwork have seriously interfered with the railway traffic. Since then the Freneh have had a further success at Metz. Last night two of their dirigibles dropped nine bombs on the station. A military train which was standing there was completely wrecked, and a large number of the soldiers in it killed or wounded.

"There is, of course, all the difference in the world between this kind of strategic bombardment and the purposeless and for the most part futile exhibitions of bomb-dropping that the enemy have lately given over Nancy. And the inhabitants of Metz seemed to realise that fact. The knowledge that the French airmen would not drop their bombs haphazard to the danger of peaceful non-combatants gave them a feeling of personal security which showed itself in a complete absence of alarm."

The Petrograd *Bourse Gazette* published the following message on January 1st :—

"The Russian troops have brought down an Austrian aeroplane in the region of Przemsyl. The aviators on board were taken prisoners. The aeroplane carried a large quantity of condensed goods for the revictualling of the fortress—a fact which would indicate that the garrison of Przemsyl is reduced to the last extremity."

According to another message from Petrograd, the Russian troops on January 1st brought down by rifle fire near Vyschgrad, on the Vistula, a German aeroplane. The pilot and observer were taken prisoners.

Mr. G. Renwick, the *Daily Chronicle* correspondent in Cairo, in a message received in London on January 2nd, said :—

"During an aeroplane reconnaissance the other day, a British airman was fired upon by a small force of Bedouins near the frontier. When he returned to his base he found that a bullet had penetrated one of the wings of his machine."

It was reported from Berlin on January 2nd, that on the previous day two hostile aviators flew over Liesdorf, near Saarlouis and dropped several bombs. They then flew off in the direction of the French frontier.

In a message from Nish on January 2nd it was stated :—

"A hostile aeroplane yesterday flew over Servian territory in the direction of Pajerevatz and Graditch, but was hit by our artillery fire and fell into the Austrian lines across the Danube."

Mr. G. Ward Price, in a message to the *Daily Mail* from Northern France on the 2nd inst., said :—

"The other day Furnes suddenly found itself again the object of hostile bombardment. In the morning it was one of the aeroplanes passing over on their way to Dunkirk that dropped a bomb, killing a woman and child. Then in the afternoon shelling suddenly began."

Writing from Amsterdam on January 2nd a *Morning Post* correspondent said :—

"The Germans have removed their aircraft from Bruges to places in the neighbourhood, as they are afraid of attacks by British airmen, who are continually dropping bombs. The German aerodrome at Bruges has been removed to Ghistel. Both at Zeebrugge and Bruges many aerial guns have been mounted. The Germans are extending their aircraft works in the region of Bruges and Ghent."

Writing to the *Daily Mail* from Rotterdam on Saturday, Mr. James Dunn said :—

"One of my correspondents in Flanders reports that a new Zeppelin shed built of iron and concrete, with mica windows, and a strong sheet iron roof, has been completed at Berchem St. Agatha to the south of Antwerp. Owing to the damage to the shed at Schaerbeek, near Brussels, by the British airmen last week, the Zeppelin airship has been removed from there to the new shed.

"At Ghistelles, near Ostend, the enemy has built six more wooden aeroplane sheds.

A *Times* correspondent, writing from Northern France on January 2nd said :—

"A letter from a trustworthy correspondent in Brussels declares that great havoc was wrought on the flying ground at Etterbeek by the bombs dropped by an English airman. It may be as well to point out that two British airmen recently visited Brussels. Commander Samson on December 20th, and Commander Davies on December 24th. The damage referred to in the letter was the work of Commander Davies, who, as the Admiralty reported, dropped 12 bombs. It is evident, however, from the tone in which the correspondent writes that the moral effect of the two flights was even greater than the military value of the bomb dropping by reason of the encouragement they gave to our allies shut up in Brussels."

The *Figaro* on January 2nd recorded the following which occurred at St. Cyr a few days ago. It recalls a similar incident, in which the late Dr. Reymond played a part, which happened at Villers Cotterets in the early part of the war.

"The military surgeon in attendance at St. Cyr was in his surgery when he was suddenly rung up. A mechanic at Villacoublay had started up an aeroplane motor, and not getting out of the way in time, had been caught by the screw. The result of the accident was that his leg was very deeply opened up. He was bleeding rapidly, and first aid methods were powerless to stop the bleeding. Would the surgeon come at once? Fortunately an aeroplane was just on the point of starting. The observing officer postponed his ascent, and the surgeon took his place, and within a few minutes the latter, a little chilled by his passage through the air, was by the side of the patient and applying the ligature necessary to stop the bleeding."

In the "wireless" news sent out from Berlin on Sunday, there were the following items :—

"It is reported that the Mayor of Lyons has ordered the lights on bridges and embankments of the city to be extinguished at nine o'clock every evening, as the appearance of Zeppelins is feared.

"On Friday night a French dirigible descended at the Idylle mine, near Krufte. At the spot where it landed French maps and instruments and a signalling horn were found, as well as a French and German flag. Two hundred soldiers carried the balloon to Coblentz."

According to the *Frankfurter Zeitung*, the dirigible is about eighteen to twenty yards long and from four to five yards in diameter. No passenger basket or car could be found.

In a message to the *Temps* from Bale on the 3rd inst., it was stated :—

"A violent engagement took place last Friday, and continued all day Saturday along the whole front of the Vosges. The firing could be heard in Switzerland. The engagement was preceded by the flight of French aviators over Mulhausen and the surrounding region, which they reconnoitred. As soon as the aviators returned the French batteries opened a murderous fire on the enemy."

The following message was received from Reuter's correspondent at Chaukiab (near Luderitzbucht), on January 4th :—

"A German biplane and a Taube monoplane flew over the British camp early this morning from the direction of Aus. Both dropped a couple of bombs, but no damage was done. The machines maintained a very high altitude, and were never within gun range. One bomb fell a couple of yards from some trenches, but the occupants were unhurt. The Taube droppod a couple of bombs on the railway line several miles easward of our position, at a point where it had been already wrecked."

In a message to the *Daily Mail* from South-West Belgium on Tuesday, Mr. G. Ward Price said :—

"It has been found, I am informed, that the source of the exact knowledge possessed by the Germans of the most propitious times for shelling Furnes has been discovered. A railway official was betraying his country. By a system of signals he conveyed information to the enemy. These signals were detected while they were being made in connection with the raiding of Dunkirk by German aeroplanes last Wednesday. The traitor was shot yesterday."

In the "wireless" news sent out from Berlin on Tuesday there was the following item :—

"German airmen have dropped bombs on the outskirts of Coudekerque and Rosendael (near Dunkirk) on the ammunition stores of the British Army situate there. One bomb set fire to and destroyed part of the village. The total number of killed and injured in both places amounts to 100."

A *Daily Chronicle* correspondent in Flanders, in a despatch dated January 5th, thus referred to the Belgian aviation headquarters :—

"Close by, in a carefully selected spot, which I may not name, the Belgian aviators have established their headquarters. They are not many. A dozen perhaps, less even since an accident has cost the life of one of them. The aviator, Dechamps, descending from a reconnoitring flight over the enemy's batteries, having escaped death from their cannons and their rifles by a miracle, touched ground too abruptly, one of the bombs which he carried in his machine broke loose, and coming in contact with the earth exploded, killing him instantly.

"If I mention this aviation centre, it is less to speak of the work accomplished by the aviators, which is beyond praise, than because I have still in my mind the thrilling memory, on the morning of my departure, of a chase, given by the Germans, to an English aeroplane, which visited their lines in a manner which left them uncomfortable.

"My automobile had taken me towards Nieuport . . . . A big English biplane was flying towards the front. It was not flying high, five or six hundred yards at most. . . . . He was still separated from the first line of German trenches by two miles, when the enemy opened fire upon him. . . . .

"Instead of rising above a thousand yards, and pursuing a zig-zag course in order to baffle the German marksmen, the biplane continued its flight at little distance from the earth, and in a straight course.

"The aviator's audacity was soon put to proof. Five shrapnels at a time exploded in the air, a little distance in front. For a few moments the dense white smoke hung in the air like flocks of cotton against the limpid sky, then the wind blew them towards the sea. Five other shrapnels followed closely, a little too far behind this time however. Then came five more, and yet another five, always five by five, the redoubtable shrapnels exploded around him, and unmoved, following his course with the calm of an aviator practising over a flying ground, the master of the air continued his reconnaissance.

"Once I thought him hit ; the white wings trembled unsteadily for a moment, paused, then balanced themselves, and the motor continued to pull the machine. When he hsd sufficiently explored Nieuport, he veered towards Ramscappelle with the same tranquillity. Still followed, and still intact, he disappeared after a few minutes in the direction of Pervyse."

Writing in the *Daily Mail* of January 6th, Mr. Frederick W. Wile said :—

"A reliable neutral, just returned from Germany, supplies me with a piece of war news hitherto suppressed in Germany, to the effect that in their panic to ward off hostile aircraft after the brilliant English raid on the Zeppelin station at Düsseldorf, two German airmen were themselves shot down by undiscriminating German anti-aircraft artillery."

It was reported from Amsterdam on Monday that French aviators flew over Brussels on Saturday and dropped bombs on the Etterbeek aerodrome. A dirigible shed in course of construction is said to have been partially destroyed, while several German soldiers were killed.

A *Times* correspondent, writing from Flanders on Wednesday, said :—

"Three Zeppelins are reported to have been seen early this morning off the coast, between Calais and Gravelines (14 miles west of Dunkirk). This news receives substantiation from the repeated visits of German airmen to Dunkirk during the day. These visitors, who, with one exception, threw no bombs, may possibly have been scouts sent out to attend the airships on their return home, or to report progress. Five times the Aviatiks came into sight, but they did not always come above the centre of the town. Once a shell from anti-aircraft guns at Firminy burst within 50 ft. of a German machine, upset its balance, and sent it away down the wind into safety. Twice airmen of the Allied forces—first Commander Samson and afterwards a Frenchman—went up and chased the intruder away. One of the German airmen dropped two bombs in the suburbs, but did no damage.

"Prompted by the heavy loss of life resulting from the last German visit, the Mayor had issued a proclamation warning the inhabitants to get under cover. As soon as a hostile aircraft was reported, therefore, a blue and white flag was hoisted as a signal rom the belfry, and the streets were quickly deserted."

Writing to the *Daily Telegraph* from Northern France on Wednesday, Mr. Patrick de Bathe said :—

"The Germans continue night and day in their labours at fortifying all their positions in Flanders. They have mounted several machine guns on the old belfry at Bruges against any raid that may be made by the Allies' aircraft. They are reported to be putting up new Zeppelin sheds there, and to be forming a big aviation centre just outside the town. Several seaplanes and a dirigible are at Zeebrugge."

## ENEMY PATENTS RELATING TO AERONAUTICS.

THE following list of British patents which have been granted in favour of residents of Germany, Austria, or Hungary, is furnished in view of the new Patents Acts, which empower the Board of Trade to grant licences under certain conditions to British subjects to manufacture under enemy patents, and is specially compiled for FLIGHT, by Lewis Wm. Goold, Chartered Patent Agent, Enrolled Patent Attorney in the United States, 5, Corporation Street, Birmingham. It is desirable in the first instance to obtain a full copy of the patent specification (price 8*d.* each patent), and also the latest particulars upon the Patents Register. If any patent listed has been assigned to a non-enemy proprietor, the law does not apply.

No. 25040/11. Aerial machines without aerostats ; planes, arrangement and construction of ; propelling ; cars. A flying machine comprises supporting planes hinged to the longitudinal sides of a frame, flapping wings hinged to the said supporting planes, a car supported from a pivot and by chains passing over pulleys, and a rudder mounted on a telescopic shaft. The supporting planes may be adjusted by means of bands, and, during transport on the ground, may be folded down at the sides of the machine. Barcz, J., Germany.

No. 26855/11. Aerial machines without aerostats ; planes, arrangement and construction of. In order to give automatic stability to a flying machine, a hollow body is arranged underneath the forward part of the triangular supporting plane of an aeroplane, and is formed of a lower inclined tapered surface connected by vertical surfaces to the edges of the main plane. The plane and hollow body are arranged to be collapsed for convenience of transfer, &c. Voigt, G., Germany.

No. 27405/11. Aerial machines without aerostats ; adapted to travel also on water ; propelling. The machine is provided with a closed-in boat chassis, having a laterally extending deck with a gunwale. To give free passage to the air current from the propellers, the chassis slopes downwards to the water at the rear, and the gunwale is discontinued at this part. Front and rear propellers arranged above the deck for protection from the water are provided. They are driven by separate engines, so that the machine may safely alight and proceed upon the water in the event of failure of one motor. Military apparatus :—A torpedo tube is so disposed in the chassis that the centre of gravity of the torpedo may coincide with that of the machine. The presence or absence of a torpedo has thus no effect on the equilibrium of the machine. The tube is arranged above the water-line, and is provided with a projecting sheath where it projects above the deck. Willisch, A. von, Berlin. Dated October 20th, 1911.

No. 27556/11. Hangars for airships. Hangars for airships are mounted upon turntables controlled electrically by the action of the wind so as always to present the longitudinal axis of the hangar in the direction of the wind. Arens, F., Germany.

No. 27625/11. Aerial machines adapted to travel also on land or water ; shock of landing, deadening. An aerial machine is provided with a boat body elastically connected to land wheels and having lateral keels which act as skids when landing on the ground. Mees, G., Germany. Dated Sept. 26th, 1911.

No. 27800/11. Propelling ; stopping way. An aeroplane is provided with a pair of concentric propellers driven by separate motors. One propeller is coupled directly to its motor, and the other is driven indirectly by chain or other gearing. The motor, which is adapted to drive through the gear, is preferably disposed with its centre of gravity coincident with that of the machine, so that in the event of its becoming defective it may be removed without disturbing the balance. Or if the direct driving motor breaks down the other motor would be substituted for it. Loutzky B., Berlin.

# Models

Edited by V. E. JOHNSON, M.A.

## Models Driven by Compressed Air.

(*Continued from page* 17.)

*Wanted, a Compressed Air Motor.*—What is wanted is a simple but good and reliable (*i.e.*, non-leaky) motor at a reasonable price. The construction of the rest of the machine presents no difficulty, nor does it require any special or expensive tools. This, however, is not the case with respect to the motor, which requires a good and accurate lathe and skill as well.

There is, or will be shortly, without a doubt, a demand for such a motor, and it must not be forgotten that a model aeroplane is not the only type of model on which such a motor can be used successfully. The writer knows personally of a very successful submarine model on which such a motor is employed, and also of several of model fast warships where such is being used.

Its great advantage—*from the ordinary amateur's point of view*—is its simplicity for any type of model. If we use electricity, unless we are in a position to recharge our own accumulators, this business is a constant expense and nuisance. When using steam, all sorts of worries and troubles arise, either the lamp blows out or the pump valves refuse to work, or some other trouble arises; if we use petrol then we must be prepared to go in for very large models, and unless we are an expert, have all sorts of difficulties with the ignition, the mixture, the sparking plugs, to say nothing of, perhaps, finding a moment of inertia in the carburettor. For rock bottom simplicity you cannot beat the c.a. type of plant; even rubber has to take a back seat in this respect.

*Best Type of Motor.*

The best type of motor has yet to be found; with respect to the c.a. driven model warships mentioned in the preceding paragraph, an ordinary high-pressure steam engine is being employed; here, of course, a little extra weight does not matter, but such, unless lightened very considerably, are quite unsuitable for model aeroplanes.

So far as one can tell at present, two single-acting cylinders, with a D slide valve acting across the bottom of the pistons, and a piston fitted with a cup-shaped oil-soaked leather washer (as in Mr. Hayden's model), has given the best results; but Mr. Hayden is constructing a new motor, twin single acting opposed cylinders fitted with a rotary valve, and the results will be awaited with considerable interest.

There are two types of c.a. motors which we cannot personally from our own knowledge of them recommend; one is the rotary type, and the other that in which the exhaust takes place through holes in the walls of the cylinder.

(*To be continued.*)

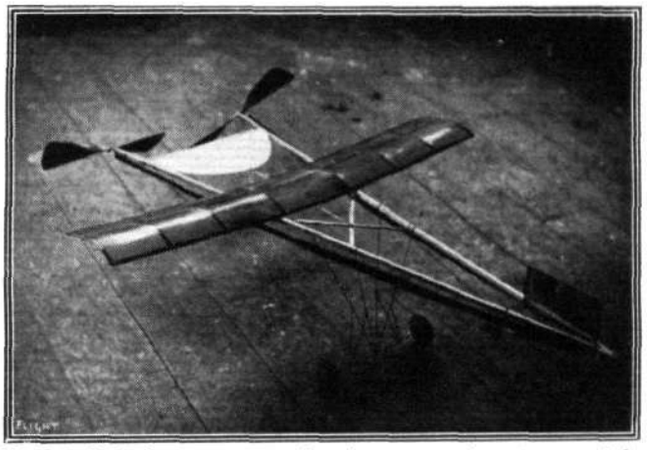
## Trial by Fire; or, Revenge is Sweet.

We have in our time seen more than one model aeroplane broken up into pieces and hurled to "perdition" when broken beyond repair, or when failing to fulfil in any way the hopes of their designer.

Personally the writer must confess to having "executed a war-dance" on one model. It was in the early days of experimenting with geared motors, when the only suitable or unsuitable cog wheels that could be obtained were got from cheap clocks. The cogs ripped and severely cut the writer on the inside of his hand, naturally the model was dropped at his feet, and so great was the pain that relief was sought in a game of football with the model, what was left—well, was left, there wasn't much left to take home. So far, however, as we know, the experiment of our correspondent is unique, a record case, we should think, of cold-blooded, no, of hot fiery destruction. His communication is as follows: "I enclose two photographs which I think may be of interest to readers of FLIGHT. The machine it represents is one of my failures which broke beyond repair whilst being tested. Having removed all parts of value, [careful man], I soaked the machine in paraffin and set light to it. The photographs illustrate two stages in its combustion, the second being taken 50 secs. after the first. The exposures were 30 and 40 secs. respectively at F. 8 taken at 7 p.m. (August)."

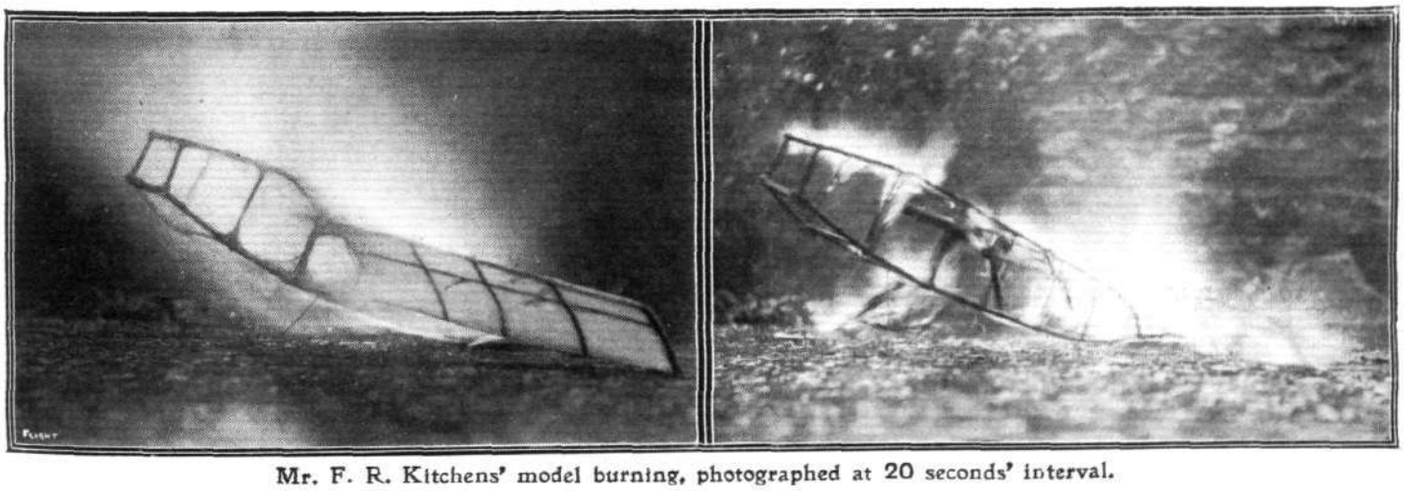
## An American Twin-Screw Model.

The model shown in our illustration was built by Mr. Frank Patky, of the Illinois Model Club, Cicero, U.S.A. The chief dimensions and particulars are as follows:—Length, 36 ins. The frame is made of $\frac{3}{16}$ to $\frac{1}{4}$ in. spruce. The span of the main plane is 27 ins., the chord 4·75 ins. The front and back spars are made of $\frac{1}{8}$ and $\frac{3}{16}$ in. pine; there are eight ribs, $\frac{1}{16}$ to $\frac{3}{16}$ in., also of pine. The camber cross rib is $\frac{1}{8}$ to $\frac{3}{16}$ in. pine. The chassis is built of



Mr. F. Patky's twin propeller American duration model.

No. 20 steel piano wire, and the axle of No. 22. The wheels are 2 ins. in diameter, and are made of $\frac{1}{16}$ in. pine, and one $\frac{1}{8}$ in. square piece of $\frac{1}{2}$ in. wood serves as a hub. The hub is glued in, and the whole wheel is wrapped around with thread, which is then covered with silk and doped with varnish, thus making a very strong and



Mr. F. R. Kitchens' model burning, photographed at 20 seconds' interval.

light wheel. The rear elevator is of No. 13 piano wire, and covered with silk. The front fin is 4 ins. long and 2·25 ins. wide, also of No. 13 piano wire. The propellers are carved out of pine blocks 10·5 ins. long and 1·75 in. wide and ·75 in. thick. The power used is six strands of ¼ in. "Carter" rubber. The rear landing chassis is constructed of No. 14 piano wire, well braced; it is not shown in the photograph.

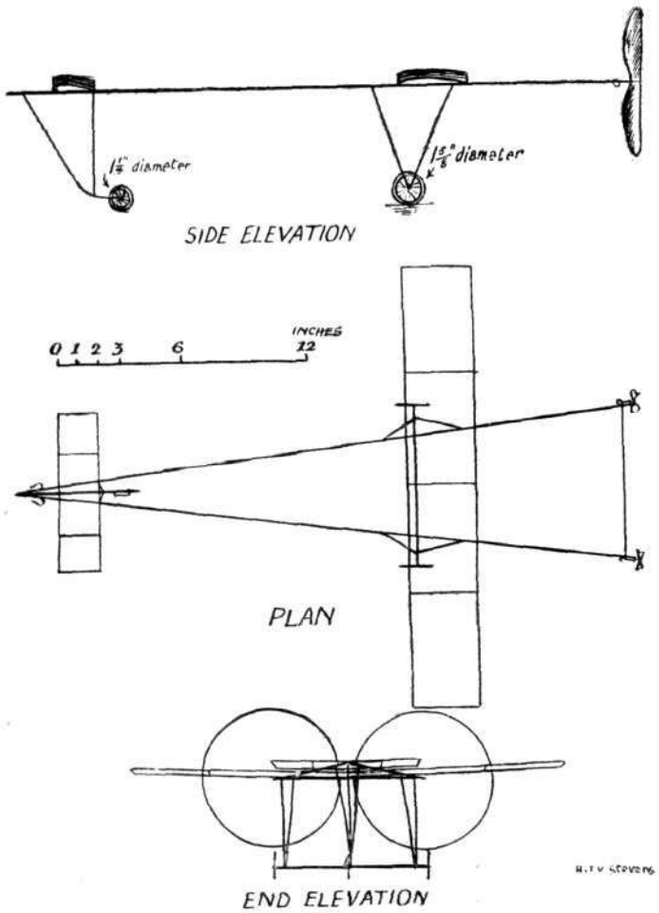
The model has made regular flights of over 100 secs. duration, the best duration to date being 119 secs., starting off the ground. The propeller bearing is made out of No. 20 piano wire. The silk, in common with the *fuselage*, is first coated with shellac, and the second coat is thin varnish. This method, if correctly applied, makes the silk smooth and tight, as well as waterproof.

The best distance record of this model to take is about 2,200 ft. Our correspondent adds that he is at present working on a tractor biplane, but as the cold weather has set in flying trials are out of the question, as the rubber motors lose so much of their power under such conditions. We are asked to state what we think of the above model. It is an extremely difficult matter to give an opinion about a model which one has not seen. American methods of construction and design differ considerably on some points from those employed by aeromodellists over here. To be perfectly candid, we do not think that the above machine is equal to certain ones of a similar kind in this country. We must also admit that we hope this and similar model types will totally disappear ere long, and be entirely superseded by *engined* models. No one who has flown the latter type cares about returning to the former, although the duration obtainable with the latter may be *at present* twice as long.

**A Small and Simple r.o.g. Model.** By H. J. V. STEVENS.

This model is a very simple and inexpensive one to make, and may serve as a guide to those who are thinking of making a machine of this type. The dimensions of the model are as follows:—

Main plane (span 21 ins., chord 3 ins., area 63 sq. ins., camber ⅛ in.), elevator (span 8 ins., chord 2 ins., area 16 sq. ins., camber




**Mr. H. J. V. Stevens' self-rising monoplane.**

¼ in.), surfacing "Bragg-Smith" silk, frame of 18 g. piano wire; frame (length 30 ins., section ¼ in. by ¼ in.), canary wood; propellers, diameter 8 ins., pitch 16 ins.; power, five strands per skein of ¼ in. strip rubber 27 ins. long; chassis material 18 gauge piano wire soldered; total weight 4 oz.; weight of rubber 1 oz. (approx.).

Any further particulars can be obtained from the drawings. The average length of flight is about 180 yds. after rising. The longest duration to date is 27 secs., this including a 3 secs. run over rather rough ground, with a slight wind blowing at right angles to the model's path. Length of run about 4 yds. Her speed in still air is *about* 15 miles per hour. Stability seems quite good, but not enough trials have been made to permit of really accurate observation. Number of turns on above flight 600; the rubber being very old more turns could not be obtained.

**Wimbledon and District Club and Compressed Air Models.**

For some time this club has been making quite a speciality of this type of model, and at least a dozen are owned by members. Nearly all are of the Autoplan type of plant, with an average duration of from 30 to 35 secs., the record to date being 47 secs. The record of the club, or for that matter so far as we are aware the "world's" record, is held by Mr. G. Hayden with a flight of no less than 74, which, curiously enough, is just the other record with the digits reversed. Mr. Hayden's plant, we are glad to say, was not "made in Germany," but of his own design and construction. Mr. Hayden is at present constructing another plant, of which more anon. This is not the only plant of English design under construction. Mr. A. F. Houlberg has one either completed or nearly so. The fact that the Autoplan plant can no longer be obtained in England is certainly no loss, because it can only have the effect of either compelling aeromodellists to design and make their own motors, or, if they have not the tools and facilities, of having them made for them here in England. The manner in which the Wimbledon Club was first led to take up this type of aeromodel, as told us by Mr. T. D. C. Chown, is not without interest. A certain member of this Club who had met with very indifferent success with rubber-driven machines, turned up one day with a compressed air-driven model, and nearly petrified them with astonishment by obtaining flights of half a minute and over. Evidently "there was more in this machine than meets the eye," as one of the earliest model flyers used to observe to the writer many years ago, and in a very businesslike manner a number of plants were obtained and models made to suit them. The machines themselves are of considerable span up to 6 ft. and over, some of the monoplanes, that is, and are in this respect a great improvement on many earlier types of models. It is the experience of this club that the c.a. tractors have been a much greater success than those of the Canard or pusher type, the latter requiring stabilising planes or auxiliary vertical fins, and being less steady in actual flight. On a tractor the first outrush of power naturally carries the model well up into the air, climbing at a very steep angle; as the power falls the model settles down in a steady flight, and the altitude gained (in the first instance) ensures a good glide at the end of the flight.

The Wimbledon Club have, of course, specialised on tractors for some considerable time, and from a series of photographs shown us by Mr. Chown, we have no hesitation in saying that the tractors were better designed machines than the pushers. The Canard type Bragg-Smith model certainly flew extremely well, but it must not be forgotten that the vertical portions of the lower plane act like side curtains or vertical fins, and the machine carried no longitudinal extensions beyond the container. At the same time there is no doubt this type of plant is especially suitable to tractor-type models, and as they are the prototypes of such a great number of full-sized machines, this is yet another point in its favour. With a well-designed model and plant there is no difficulty either in getting the c.g., and therefore the main planes, sufficiently far forward to obtain models (especially of the monocoque type) which are, practically speaking, scale models of full-sized machines. With such and a duration of 60 secs. many useful experiments should be possible.

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## AFFILIATED MODEL CLUBS DIARY.

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JAN. 9TH, models of all types will be timed over measured courses to-day and each fine Saturday during this month for purposes of research work. Members should fill up their research form at home and bring it with them. Jan. 16th, annual general meeting takes place at 89, Herries Street, Queen's Park, N.W., at 9 p.m. promptly.

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